

# ED3538

## Hardened 10/100BASE-TX PoL/PoE Ethernet Extender over Copper Wires



## Overview

The ED3538 Hardened Ethernet Extender utilizes EtherWAN's exclusive Power over Link (PoL) technology to deliver both PoE power and Ethernet communications over a single legacy twisted pair cable, such as a telephone line. The ED3538 PoL solution is comprised of one transmitter and one receiver working together to provide reliable communications and power to remote PoE Powered Devices such as IP cameras, wireless access points, emergency intercoms, or VoIP phones.

With just the transmitter connected to power, the ED3538 provides a maximum of 30 watts of power and a bandwidth of 100Mbps to the ED3538 receiver, at distances up to 300 meters. Under this setup, transmission over longer distances can be achieved with lower data and power throughput — up to 1200 meters at a data rate of 20Mbps and 5 watts of power. However, for applications that require even longer distances, the ED3538 can be connected to power at both the transmitter and the receiver unit, increasing the transmission distance to a remarkable 2200 meters, with a data rate of 1Mbps and a full 30 watts. The current data transmission rate and power sourcing equipment output is displayed by LED indicators.

The ED3538 is highly resistant to electromagnetic interference, shock, and vibration, ensuring connection reliability even in harsh environments.

## Spotlight

- **Power over Link™ up to 1.2 km (3936 ft.)**
  - Over an 1200 meters long RJ11 cable, a guaranteed 5 watts power with 20Mbps bandwidth is delivered to the receiving side
- **Ethernet extension solution with high transmission data rate up to 100Mbps**
  - Up to 300 meters transmission distance with 100Mbps data rate
- **Transmission rate and PSE output power indicator LEDs**
  - Six transmission rate LEDs and three PoE/PSE output power LEDs on the front panel

# Hardware Specifications

## Technology

### Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX,
- IEEE802.3x full duplex and flow control
- IEEE802.3af/at PoE/PSE

### Protocols

- Transparent to higher layer protocols

### Processing Type

- IEEE802.3x Full-duplex flow control
- Auto-Negotiation
- Auto MDI/MDIX

## Power

### Input

- Terminal Block: 46 - 57VDC
- DC JACK: 48VDC
- 2.5A @ 48VDC (Peak current 3.26A)

### Power Consumption

- Max. 65W with Power over Link™ (PoL) function enabled
- ED3538T: Max. 5W (without PoL / PoE)
- ED3538R: Max. 5W (without PoL / PoE)  
Max. 35W (with PoE only)

### Protection

- Overload current protection
- Reverse polarity protection

## Mechanical

### Casing

- Aluminum case
- IP30

### Dimensions

- 50 x 110 x 135mm (W x D x H)  
(1.97" x 4.33" x 5.31")

### Weight

- 0.8Kg (1.76lbs.)

### Installation

- DIN-Rail (Top hat type 35mm), Panel or Rack mounting

## Interface

### Ethernet Port

- ED3538T/R: 1 x 10/100BASE-TX Full-duplex RJ-45 port
- ED3538R: 1 x PoE/PSE port
- Speed: 10/100Mbps
- Cable: 100BASE-TX, UTP CAT. 5 (4-pair wire)
- Distance: 100 meters (328ft.)

### Ethernet Extender Port

- 1 x RJ11 port
- 1 x 2-pin Terminal Block (Wire range: 12 - 30 AWG)

### DIP Switch

- ED3538T: PoL: ON/OFF, Type: Perf/Std
- ED3538R: Mode: Loc/Rmt, Type: Perf/Std

### LED Indicators

- Per Unit: Power
- Per 10/100TX Port: Link/Activity, Full-duplex
- Line Speed: Six indicators for 100/80/60/40/20Mbps and Link below 20Mbps
- PoE: Power over Ethernet function availability

## Distance / Speed / PoE Output Reference

PoL™ Enabled		
Distance	Data Rate	ED3538R PoE Output
300m	100Mbps	30.0W
400m	90Mbps	15.4W
600m	60Mbps	14.0W
800m	45Mbps	9.5W
1000m	35Mbps	7.0W
1200m	20Mbps	5.0W

PoL™ Disabled (Power supply on 3538R)		
Distance	Data Rate	ED3538R PoE Output
1400m	15Mbps	30.0W
1600m	10Mbps	30.0W
1800m	3Mbps	30.0W
Up to 2200m	1Mbps	30.0W

NOTE: Reference Performance on 24 AWG copper wire (0.5mm diameter, 1-pair wire, Cable impedance: 100ohm)

## Environment

### Operating Temperature

- -40 to 75°C (-40 to 167°F)  
Tested @ -40 to 85°C (-40 to 185°F)

### Storage Temperature

- -40 to 85°C (-40 to 185°F)

### Ambient Relative Humidity

- 5% to 95% (non-condensing)

## Regulatory Approvals

### ISO

- Manufactured in an ISO 9001 facility

## Safety

### UL 60950-1, IEC 60950-1

## EMI

### FCC Part 15B, Class A

### EN 61000-6-4, EN 55022, EN 61000-3-2 and EN 61000-3-3

## EMS

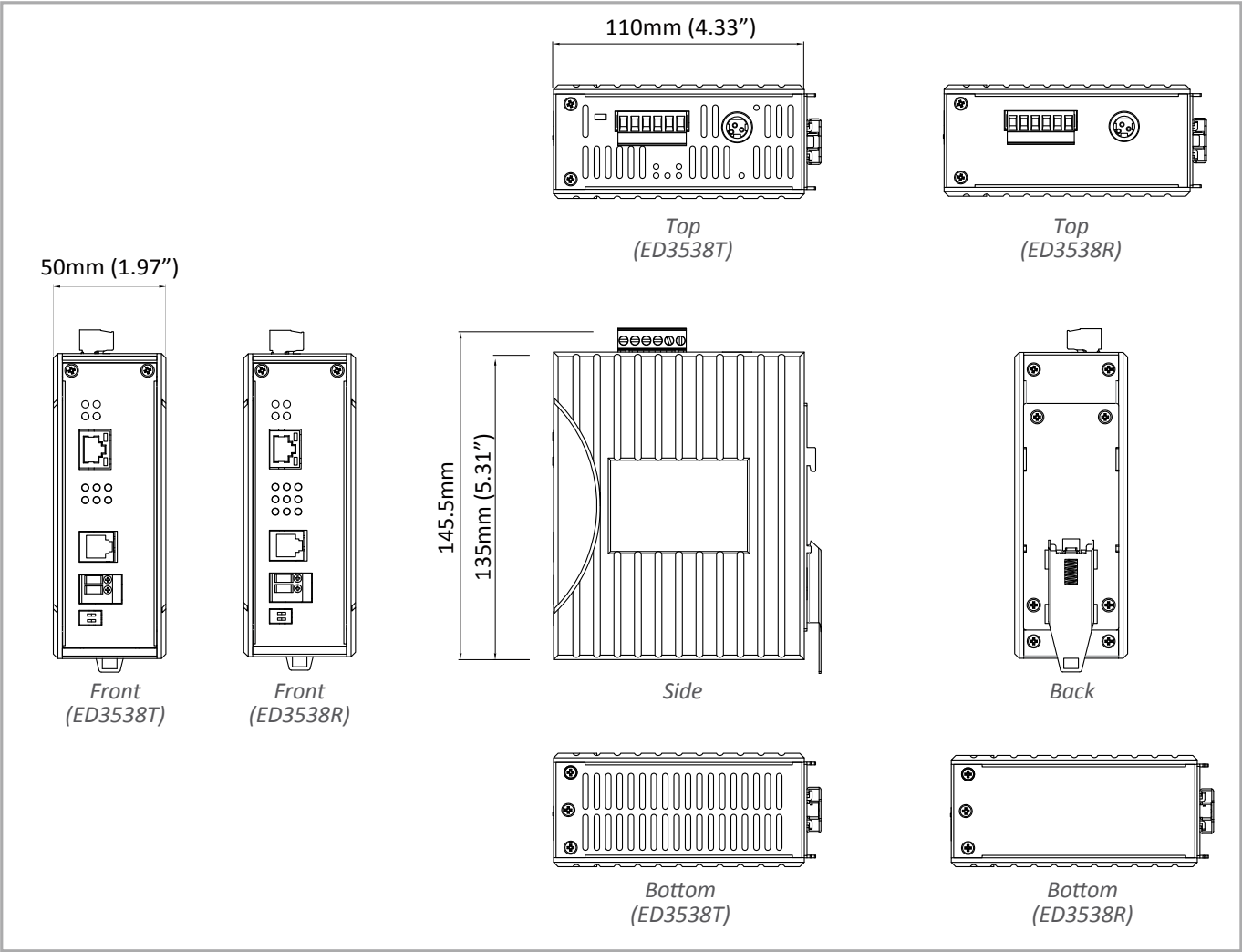
### EN 61000-6-2

- EN 61000-4-2 (ESD Standards)
- EN 61000-4-3 (Radiated RFI Standards)
- EN 61000-4-4 (Burst Standards)
- EN 61000-4-5 (Surge Standards)
- EN 61000-4-6 (Induced RFI Standards)
- EN 61000-4-8 (Magnetic Field Standards)

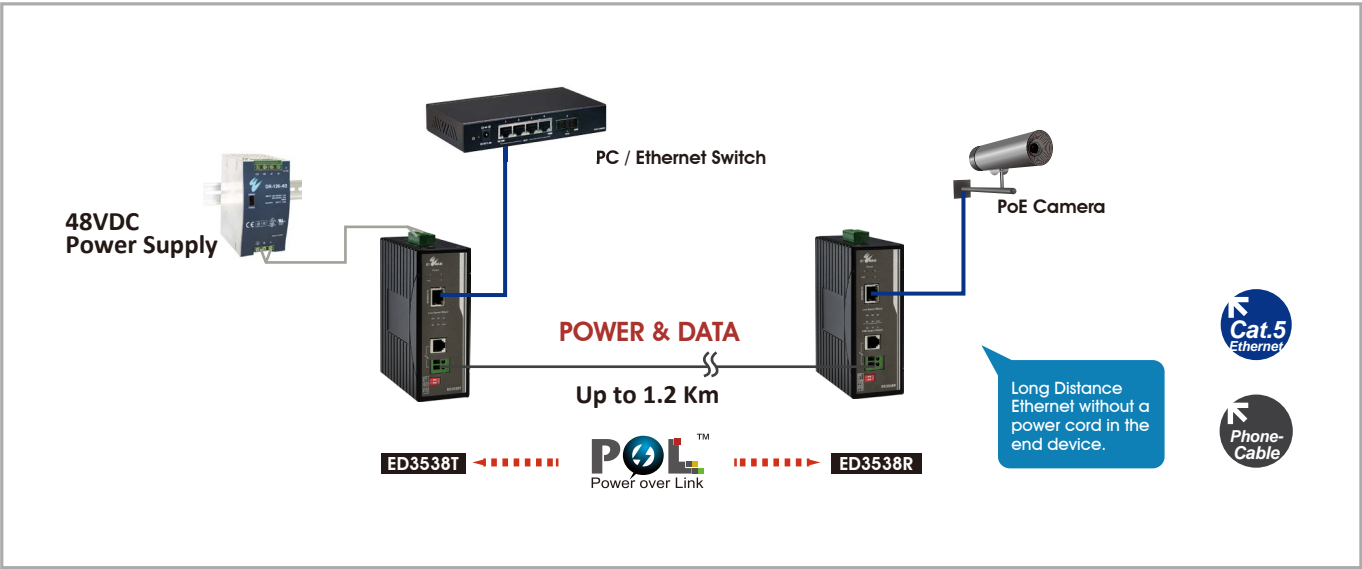
## Environmental Test Compliance

### IEC 60068-2-6 Fc (Vibration), IEC 60068-2-27 Ea (Shock), IEC 60068-2-32 Ed (Free fall w/ package)

# Dimensions



# Application Diagram



# Ordering Information

## Model

ED3538	Hardened PoL/PoE Ethernet Extender over Copper Wires (including one ED3538T and one ED3538R)
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Note:  
\* ED3538T is the power transmitter of PoL and ED3538R is the power receiver of PoL  
\* DIN-Rail mounting kit included

## Optional Power Supplies

Power supply suggestion	30 watts PoE application
SDR-120-48 / DR-120-48 (120W 48VDC)	For 1 pair
SDR-240-48 (240W 48VDC)	For 3 pairs
SDR-480-48 (480W 48VDC)	For 7 pairs